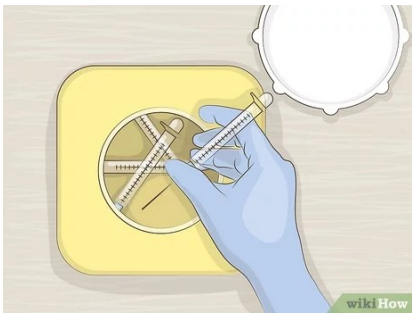
Kingdom of Saudi Arabia
Ministry of Health
Directorate of Health Affairs - Najran
New Najran General Hospital
Infection Prevention &Control Department

المملكة العربية السعودية
وزارة الصحة
مديرية الشؤون الصحية - نجران
مستشفى نجران العام الجديد
قسم مكافحة العدوى

Improvement project for medical waste management in Critical areas at New Najran General Hospital



Presented on 01/2023

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Background

Precisely defining medical waste on the basis of quantity and type of etiologic agent present is virtually impossible. The most practical approach to medical waste management is to identify wastes that represent a sufficient potential risk of causing infection during handling and disposal and for which some precautions likely are prudent. Health-care facility medical wastes targeted for handling and disposal precautions include microbiology laboratory waste (e.g., microbiologic cultures and stocks of microorganisms), pathology and anatomy waste, blood specimens from clinics and laboratories, blood products, and other body-fluid specimens. Moreover, the risk of either injury or infection from certain sharp items (e.g., needles and scalpel blades) contaminated with blood also must be considered. Although any item that has had contact with blood, exudates, or secretions may be potentially infective, treating all such waste as infective is neither practical nor necessary.

Medical wastes require careful disposal and containment before collection and consolidation for treatment. OSHA has dictated initial measures for discarding regulated medical-waste items. These measures are designed to protect the workers who generate medical wastes and who manage the wastes from point of generation to disposal. A single, leak-resistant biohazard bag is usually adequate for containment of regulated medical wastes, provided the bag is sturdy and the waste can be discarded without contaminating the bag's exterior. The contamination or puncturing of the bag requires placement into a second biohazard bag. All bags should be securely closed for disposal. Puncture-resistant containers located at the point of use (e.g., sharps containers) are used as containment for discarded slides or tubes with small amounts of blood, scalpel blades, needles and syringes, and unused sterile sharps. To prevent needle-stick injuries, needles and other contaminated sharps should not be recapped, purposefully bent, or broken by hand. CDC has published general guidelines for handling sharps. Health-care facilities may need additional precautions to prevent the production of aerosols during the handling of blood-contaminated items for certain rare diseases or conditions (e.g., Lassa fever and Ebola virus infection).

Transporting and storing regulated medical wastes within the health-care facility prior to terminal treatment is often necessary. Both federal and state regulations address the safe transport and storage of on- and off-site regulated medical wastes. Health-care facilities are instructed to dispose medical wastes regularly to avoid accumulation. Medical wastes requiring storage should be kept in labeled, leak-proof, puncture-resistant containers under conditions that minimize or prevent foul odors. The storage area should be well ventilated and be inaccessible to pests. Any facility that generates regulated medical wastes should have a regulated medical waste management plan to ensure health and environmental safety as per federal, state, and local regulations.

Terminology

Hazardous Medical Waste refers to any hazardous material no longer in use that represents a threat to human life, health or the environment.

Cytotoxic Waste refers to any residual cytotoxic agents that remains following patient treatment and any materials or equipment (considered as waste) potentially

contaminated with cytotoxic agents (not including contaminated body fluids/secretions).

Human and Animal Body Parts and Organs, for the purpose of this document, refers to waste which contain human or animal tissues (e.g. organs or their parts, fetal and placental tissues and animal carcasses), blood, blood components and body fluids.

Infectious Waste, refers to waste which contains biological agents (e.g. Bacteria, viruses, parasites, fungi) in quantities or at concentrations sufficient to cause infectious disease to individuals susceptible to infection. Any items contaminated (i.e. Dripping) with blood or body fluid is considered to be to be infectious.

Sharps Waste refers to waste which contains sharp items such as vaccine glass vials, needles, syringes with needles, scalpels, lancets, razors, broken glass or any other sharp object that has the potential to cut or puncture the body or skin.

Non-hazardous Medical Waste refers to waste similar to that found in municipal waste generated by administrative departments, general cleaning work within healthcare facilities and items not contaminated (i.e. not Dripping) with blood or body fluid. This waste constitutes the larger portion of healthcare waste and is treated in a way similar

to general/municipal waste.

Waste Segregation refers to the separation of a group of healthcare waste (by the

generator) at the site of their generator within the facility and during stages of collection,

storage and transportation within the facility.

Objective

1-Ensure availability of proper number and specification of waste collection and storage supplies

2- To provide a process governing the management of infectious and non-infectious medical waste through well-organized staff training and education including monitoring and control methods for safe handling, storage, labeling, segregation, reporting, transportation, safe disposal and treatment processing in accordance with the health and safety guidelines, laws and regulations.

Targets

Selected areas are critical areas including:

Educate all employees, patients and visitors in selected critical areas

Infectious Waste Management

Implementation Process

the requirements includes:

(1) Test of the awareness of the healthcare staff of the hospital generated waste.

(2) Review of the items of medical supplies used by the hospital.

(3) Determination of the weight of the generated hospital waste.

(4) Review of policy and procedure on the handling of healthcare waste and lists of items designated as hazardous healthcare or other types of waste.

(5) Assessment of the number, location, condition, proper color coding and content of the means of collection.

(6) Mapping and inspection of the storage areas and the route of transportation.

Requirements of deficient supplies

Estimate required black waste bins in hospital departments in critical and non-critical areas

Requirements from the Generators of Infectious Medical Waste

Infectious medical waste generators will make efforts to reduce the level of generation of this waste, both in quantity and quality.

Ex. Empty Glass Medicine Bottles will be disposed of in yellow sharp containers.

- Empty Non-Contaminated Unbroken Glass Bottles (e.g. beverage bottles) will be disposed of in a separate container until collected in cardboard boxes by housekeeping staff for disposal and to be considered as non-regulated waste.
- Empty Vaccine and Antibiotic Containers or Bottles will be disposed of in a biohazard sharps container.
- Broken Glass will be disposed of in a sharp container.
- List of patients care related waste items and where to dispose are provided in (Appendix).

Segregation and Disposal of Infectious Medical Waste:

- Each Infectious medical waste generator will segregate Infectious from non-Infectious waste at the generation site. The waste generator will be responsible for segregation and collection of waste in containers specially made for this purpose within Program facilities and departments.
- Infectious Waste will be collected in yellow plastic bags bearing the phrase Hazardous Medical Waste (in Arabic and English) along with the Bio-Hazard logo.
- Sharps Waste will be disposed of in yellow thick, leak proof, puncture proof containers, bearing the phrase Hazard-Sharp Items (in Arabic and English) and the Bio-Hazard logo.
- Body Parts and Organs will be placed in red plastic bags bearing the phrase Bio-Hazard (in Arabic and English) and the Bio-Hazard logo, and will be

stored in the mortuary until dealt in accordance to Sharia Law (Islamic Law) or as deemed necessary by the relevant country.

- Highly Infectious Waste (microbial cultures, viruses, TB, Brucella, Fungi) will be collected in plastic bags suitable for pre-treatment with autoclave within the generation site; these bags will bear the phrase Highly Infectious Waste and the Bio-Hazard logo.
- Following treatment, waste will be placed in yellow bags bearing the phrase Hazardous Medical Waste (in Arabic and English) and the Biohazard logo.

Sticker Labeling and Biohazard Logo

Infectious medical waste generator will attach a sticker to the containers and waste bags (if information is not printed or provided) prior to their transportation to stores within facility or Waste Treatment and Disposal Facility. The stickers will contain the following data:

- Waste generator name (facility name)
- Site name (section or ward)
- Generated waste type as per its classification.
- Weight and quantity of waste in the bag/container
- Date and time of collection
- Transportation date and time to the disposal facility.

All labelling stickers attached to bags/containers will be of the proper size and written/printed in waterproof and permanent ink.

The Bio-Hazard logo or other labeling requirements will be affixed to bags/containers as specified in the Labeling Requirements.

Collection/Transportation

- The collection and transportation of bags/containers of Infectious medical waste requires the use of special trolleys and well-trained staff in order to guarantee the highest degree of safety during collection or transportation within the facilities, for prevention of leaks or spills from bags/containers.
- Healthcare workers who transport such waste will be trained on such tasks and on spill management.
- Prior to the collection and transportation of Infectious waste, bags/containers will be fully sealed and locked, and display the appropriate data sticker identifying content, as well as proper hazard identification and its related labeling, including the Bio-Hazard logo.
- Waste bags will not be filled to more than 3/4 of their capacity and will not be pressurized or compacted. Waste bags will not be held close to the collector's body or be held from underneath. Bags will only be held at the top for safe handling.
- Infectious waste will be transported within the facilities in covered, specially designed leak proof trolleys that guarantee efficiency on loading and unloading and are easy to clean or disinfect.
- Tissue, human body parts, fetal and placental organs will be segregated and collected in red bags and stored in the mortuary in a special refrigerator until burial in accordance with Sharia Law (Islamic Law).

- Animal carcasses and animal tissues will be collected in yellow bags and kept isolated in a special fridge until they are treated and disposed of.
- Trolleys for collecting and carrying hazardous medical waste will be cleaned, washed and disinfected on a daily basis in special location by trained staff under the supervision of the person responsible for hazardous medical waste within respective facilities.
- In cases where there is an incident of Infectious waste spill or leak from plastic waste bags, containers or trolleys, such waste is considered extremely hazardous and requires immediate action. Cleaning, disinfection and safety measures including the use of appropriate protective clothing or equipment will be taken when and where leakage is identified.

Non-hazardous medical waste will be collected in black plastic bags.

Such waste will be treated separately and segregated from hazardous medical waste in all stages (packaging, collection and transporting inside the facilities and storage) until transported to the final disposal destination landfill (e.g. municipal landfill).

Requirements from the Infectious waste generator

- When transporting waste outside the location: Infectious waste will be packed and labeled correctly in accordance to their types
- Only licensed personnel or competent parties will be authorized to deliver Infectious waste
- Any Infectious waste being delivered for transport outside the institution will
- Submit a copy of the completed Hazardous Medical Waste Manifest Form to the
- Waste Treatment and Disposal Facility identifying the type of waste delivered for disposal.
- Infectious waste will only be delivered to a Waste Treatment and Disposal
- Facility with a current valid license obtained from a competent authority Related Hazardous Medical Waste Manifest Form and other related documentation will be archived for a period of ten (10) years.

Operative Record Required:

- The generator of Infectious waste will comply by providing reports on all related aspects of hazardous medical waste, such as data of waste generation, storage, transportation and disposal.
- The generator will provide a copy of these reports periodically to all
- relevant parties when requested.
- The Waste Treatment and Disposal Facility operator will maintain a documented operative record of the following information:

- Description of the quality and quantity status of each shipment delivered and the name of the generator stated in the Hazardous Medical Waste Manifest Form receiving date and treatment date
- A copy of all Hazardous Medical Waste Manifest Forms.

- Any other records considered by the competent parties as necessary to keep.
- The Waste Treatment and Disposal Facility operator will submit the following reports:
- Monthly reports which include the quantity of waste delivered daily from each generator individually and the name of its generator, transporter/carrier, when required by the competent body

Monitoring

The following measures are suggested:

(1) Regular inspection of the means of collection, transportation and storage.

(2) Feed-back from the departments.

(3) Assessment of the weight of healthcare waste.

(4) Re-testing the awareness of the healthcare staff of the generation of waste in hospitals.

(5) Auditing the upgraded management.

Time table

	ER	OT	ICU	PICU	Total
Supplies availability ○ Black bin ○ Yellow bin ○ Sharp containers					**2 months**
Staff Education ○ Nurse ○ Doctors ○ House keeping					**4 months**
Monitoring performance ○ Self-assessment ○ IPC monitoring checklist					**6 months**

Gant Chart

ER

Task Name	Start Date	End Date	Duration
Supplies request			
Supplies distribution			
Staff Education and training			
Monitoring proper practice			
Check defe3cts and re-evaluation			

OT

Task Name	Start Date	End Date	Duration
Supplies request			
Supplies distribution			
Staff Education and training			
Monitoring proper practice			
Check defe3cts and re-evaluation			

ICU

Task Name	Start Date	End Date	Duration
Supplies request			
Supplies distribution			
Staff Education and training			
Monitoring proper practice			
Check defe3cts and re-evaluation			

PICU

Task Name	Start Date	End Date	Duration
Supplies request			
Supplies distribution			
Staff Education and training			
Monitoring proper practice			
Check defe3cts and re-evaluation			

Wastes from patients on isolation

Wastes from patients on isolation	
Patient isolated for ***MDROs***	All wastes should be disposed in black bag (general wastes); except dressings from infected or surgical wounds, and the items heavily soiled with blood or other body fluids .
Patient isolated for ***highly infectious diseases*** (confirmed and suspected) e.g. Ebola, Smallpox, Anthrax , and other diseases decided by the infection control team to be a highly infectious diseases	**Manage used disposable PPE and all other patient care items as Hazardous Medical Waste and dispose in the yellow bag.**
Patient isolated for **suspected pulmonary TB**	**Manage used disposable PPE and all other patient care items as Hazardous Medical Waste and dispose in the yellow bag.**
Patient isolated for **confirmed infective *TB:* *Eg. Open pulmonary TB, Laryngeal TB, extra pulmonary draining infection***	**Manage used disposable PPE and all other patient care items as Hazardous Medical Waste and dispose in the yellow bag.**
Patient isolated for **confirmed non-infective TB**: eg. Non- Open pulmonary TB, Peritoneal TB with no drain, TB from non- draining infection	All wastes should be disposed in black bag (general wastes); except dressings from infected or surgical wounds, and the items heavily soiled with blood or other body fluids .
Patient isolated for ***highly infectious communicable diseases*** e.g. H1N1, MERS Co, n corona 2019, and other respiratory viruses	All wastes should be disposed in black bag (general wastes); except dressings from infected or surgical wounds, and the items heavily soiled with blood or other body fluids
Measles (Confirmed and suspected)	**Manage used disposable PPE and other patient care items for measles patients as Hazardous Medical Waste and dispose in the yellow bag.**

Appendi

All PPEs from patient isolated for infection other than what was mentioned in the above table should be disposed in black bag (general wastes); except those heavily (dripping) soiled with blood or other body fluids .

IV tubing and syringes

IV Tubing and syringes:				
IV Tubing and syringes :	**Hazard-Sharp Items**	**Black Bag**	**Infectious Waste**	**Cytotoxic Waste**
Iv tubing used for blood and blood product			√	
Iv tubing used for cytotoxic and chemotherapy				√
Iv tubing NOT used for blood , blood product, cytotoxic nor chemotherapy		√		
syringes without needle and used for blood and blood product			√	
syringes without needle and used for cytotoxic and chemotherapy				√
syringes without needle and NOT used for blood , blood product, cytotoxic nor chemotherapy		√		
syringes with needle	√			

Patient care related waste items

Patient Care Related Waste Items	Hazard-Sharp Items	Black Bag	Infectious Waste	Cytotoxic Waste	Comments
Adaptic		√			
Adult armboards		√			
Alcohol swab		√			
Angiocath (with needle)	√				
Antimicrobial skin cleanser kit		√			
Applicator e.g. CHG Applicator		√			
Arterial catheter(without needle)		√			
Bag water soluble		√			
Bandage		√			
Bandage stretch		√			
Bandaids strip		√			
Bedpan		√			
Bile bag with drainage		√			Drain contents into hopper or toilet
Biohazard Transport bag		√			
Bite stick		√			
Blood /Blood products tubing and bags			√		
Blood gas analyzer cartridge container			√		
Blood gas syringes with needle	√				
Body Lotion		√			
Brown bag paper		√			
Butterfly needle	√				

Cath/drainage tube plug protector		√			
Catheter leader		√			
Chest tube`			√		
Chux underpads		√			
Closed chest drainage system adult/pediatric			√		
Comb		√			
Connecting tubing		√			
Cotton ball large		√			
CVC kit	√	√	√		Packaging: **Black bag** Needle: Sharps bin
					Tubing removed from patient: **yellow bag**
CVP change dressing kit		√			
Denture container		√			
Dialysis tubing and dialyzer			√		
Drape (fenestrated and non-fenestrated)		√			
Drape sheet large		√			
Duodenal tube		√			
ECG electrodes		√			
ECG monitor paper		√			
Egg crate bed pad		√			
Elastic stockings		√			
Endotracheal tubes		√			
Enema kit		√			
Enteral feeding tubing		√			
Extension tubing		√			
Eye pad oval		√			
Eye shield alum		√			

Feeding pump tube		√			
Filter needle	√				
Foley catheter tray		√			
Foley catheter tray with drainage system		√			
Foley catheter		√			
Gastrostomy Tube		√			
Gauze		√			
Gel intrasite		√			
Gloves		√			
Gowns		√			
Heel protector		√			
Hemovac drain			√		Drain contents into hopper or toilet
Hypodermic needle	√				
Irrigation tray/basin container & piston syringe		√			
dishes / trays		√			
IV cannula needle	√				
IV cannula w/ extension piece	√				
IV tubing		√			
Jackson Pratt drain		√			Drain contents into hopper or toilet
Kidney Basin		√			
Lancing Device Regular	√				
Limb holder		√			
Lumbar puncture tray	√	√			Packaging: **Black bag** Needle: **Sharps bin**
Male urinal		√			After emptying
Male/female adapter		√			

Mask w/ splash guard		√			
Maternity pad sterile wrapped		√			
Measuring Tape Paper		√			
Medication cup		√			
Mucous trap w/tubing/suction port			√		
N95 respirator mask		√			
Nasogastric tube		√			
Neuro external drainage collection set	√	√			Packaging: **Black bag** Introducer: **Sharps bin**
Neuro external drainage ventricular cath kit	√	√			Packaging: **Black bag** Introducer: **Sharps bin**
Pack mortuary large adult		√			
Paper towels		√			
PCA tubing			√		
Penrose drain		√			
Percutaneous sheath introducer port kit	√	√	√		Packaging: **black bag** Needle: **Sharps bin**
					Tubing removal from patient: **yellow bag**
Peripad		√			
Petrolatum gauze		√			
Pleuro vac drain			√		
PLT infusion tubing micron filter			√		
Precutaneous drain sponge		√			
Pressure monitor		√			
Dressing		√			

Pulmonary artery catheter kit	√	**√**	√		Packaging: **black bag** Needle: **Sharps bin**
					Tubing removal from patient: **yellow bag**
Quinton catheter set	√	**√**	√		Packaging: **black bag** Needle: **Sharps bin** Tubing removal from patient: **yellow bag**
Radial artery cath suture wing clip kit	√	**√**	√		Packaging: **black bag** Needle: **Sharps bin** Tubing removal from patient: **yellow bag**
Disposable cutting head piece of the clipper	**√**				
Safety pin	√				
Salem sump tube		**√**			
Sanitizer Air		**√**			
Scalpel	√				
SCD stocking knee sleeve		**√**			
Scissors	√				
Silk tape		**√**			
Skin closure strips		**√**			
Skin stapler remover	√				
Slippers		**√**			
Soap		**√**			
Soap Dish		**√**			
Spinal needle	√				
Stockinette		**√**			

Suction canister liner with fluid			√		
Suction cath kit		√			
Suction tray		√			
Suction Catheter		√			
Surgical cap		√			
Surgical gown cuffed w/hand towel sterile		√			
Surgical mask		√			
Suture removal tray	√	√			Scissors: **Sharps bin**
					Plastic forceps/packaging: **Black bag**
Suture silk without needle		√			
Suture silk with needle	√				
Swabstick alcohol		√			
Swabstick chlorahex gluc		√			
Swabstick povidone-iodine		√			
Syringe with needle	√				
		√			
		√			
Thoracentesis tray	√	√			Packaging: **black bag** Needle**: Sharps bin**
Tissue Facial		√			
Tongue depressor		√			
Toothettes		√			
Tracheostomy tube		√			
Tracheostomy/ETT Holder		√			
Tracheostomy tray	√	√			Packaging: **black bag** Needle: **Sharps bin**

Labeling requirements

1. Specification for labeling yellow bags and red bags

DO NOT FILL ABOVE THIS LINE.....75%.....

BIO HAZARDOUS
خطر حيوي

Infectious Hazardous Medical Waste
نفايات طبية خطرة معدية

Origin..... Program facility

General Information	
Generated At	.....
Location	.....
Sealed	.....
Type	.....
Date (D/M/Y)	.....
Time	.....
Weight (Kg)	.....
Collected for disposal	
Date (D/M/Y)	.....
Time	.....

Destination.....

2. Specification for labeling "Sharps" Container

DO NOT FILL ABOVE THIS LINE.....75%.....

Hazard-SHARP ITEMS/CONTAMINATED SHARPS

نفايات حادة خطرة / ملوثة

Origin..... Program facility

General Information	
Generated At	.....
Location	.....
Sealed	.....
Type	.....
Date (D/M/Y)	.....
Time	.....
Weight (Kg)	.....
Collected for disposal	
Date (D/M/Y)	.....
Time	.....

Destination.....

3. Specification for labeling Red bag for body parts

BIO HAZARDOUS
خطر حيوي

Origin..... Program facility

General Information	
Generated At	.....
Location	.....
Sealed	.....
Type	.....
Date (D/M/Y)	.....
Time	.....
Weight (Kg)	.....
Collected for disposal	
Date (D/M/Y)	.....
Time	.....

Destination.....

4. Specification for labeling HIGHLY INFECTIOUYS WASTE

BIO HAZARDOUS
خطر حيوي

Highly Infectious Medical Waste
نفايات طبية خطرة شديدة العدوى

Origin..... Program facility

General Information	
Generated At	.....
Location	.....
Sealed	.....
Type	.....
Date (D/M/Y)	.....
Time	.....
Weight (Kg)	.....
Collected for disposal	
Date (D/M/Y)	.....
Time	.....

Destination.....

References

Manual of Environmental Cleaning and Disinfection in Healthcare Facilities

https://www.moh.gov.sa/en/Ministry/Rules/Documents/Medical-Waste-Classification-(v3).pdf

https://www.cdc.gov/infectioncontrol/guidelines/environmental/background/medicalwaste.html